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varying the amount of the rates according to the extent of the advantages enjoyed, your Committee do not venture to pronounce any decided opinion. The principle on which an uniform rate was originally established has been already explained; and as long as the sewerage was confined to the surface drainage of a district, it was perfectly just. But now that there are so many other advantages connected with the sewerage, it seems desirable to recognize a distinction which exists, *de facto*, in every part of London; and not, at all events, to impose precisely the same amount of rate on streets and houses which have no private underground drains, because there are no sewers within reach into which to lead them, as upon other streets and houses amply provided with the accommodation of public and private drainage.

"Your Committee regret that it should not be in their power to suggest any practicable mode of correcting that want of combination between the different Trusts, which they have alluded to as one of the defects of the present system; but they see so many reasonable objections to a Central Board, superseding in part, or altogether, the local Trusts, a change which would be most unpalatable to the inhabitants of the respective districts, that they cannot recommend it as desirable until, at all events, the effect of the changes suggested in the present Report, should the House think proper to approve of them, shall have been fairly tried."*

An Examination of the Returns made by the various Railway Companies of the United Kingdom, with respect to their Traffic during the year ending 30th June, 1843. By G. R. PORTER, Esq., F.R.S., Treasurer of the Statistical Society of London.

[Read before the Statistical Society of London, 15th April, 1844.]

THE establishing of railroads to the extent to which the system has now arrived in England, is a fact in various ways interesting and important. That system may be said to have begun with the construction of the short but most useful line between Liverpool and Manchester, in September, 1830. For many years before that time railways had been used for the cheap and easy, but not very rapid, conveyance of great bulk and little value, such as coal and lime; but with the opening of the line just mentioned began the use of the locomotive engine, and the conveyance of passengers at rapid rates of speed. Its success led the way to the immediate construction of other railways in various parts of the kingdom, and it is much to be regretted that means were not at once taken whereby the various effects which these works could not fail to produce upon the social economy of the kingdom might be measured and followed out.

The earliest attempt of the Legislature to supply this information was made in 1840, when the first general Act, known as Lord Seymour's Act, for the regulation of railways, was passed. Under this Act, a department of the Government was created, to which power was given to call for some few among the statistical details which the different companies were qualified to furnish. These details were thereupon required, according to forms so prepared, that in answering them nothing should

* Commons' Committee's Report, 8th August, 1834, Sess. 1834, No. 584.

be left to the discretion of the individual Board of Directors; an essential condition to ensure utility from the facts when collected, consisting in their perfect uniformity. To the working members of this Society it will not excite surprise to find, that, notwithstanding a great amount of care and diligence was employed in framing the questions proposed, the degree of uniformity exhibited in the answers obtained was for some time far from being satisfactory. We know, from personal experience, how difficult a thing it is to bring any considerable number of individuals, acting independently of each other, to place the same facts in the same point of view, or to recognize the value or the importance of one or another part of a subject, the misconception of which, or its absence from a statement, necessarily impairs the accuracy, and therefore lessens the value of the whole. This difficulty has not yet been entirely surmounted, but the returns are now made in a tolerably satisfactory manner by the great majority of railway companies, and it is thought that a brief statement of a few of the results which they exhibit may not be uninteresting. Hereafter we may hope to have these facts presented to us in a more perfect form, and to be able to trace the effects of railway communication upon branches of social economy beyond those to which our inquiries are at present necessarily limited.

The returns made by the various companies, showing the number of passengers conveyed on railways in the United Kingdom, distinguishing the classes of carriages in which they travelled, and stating the money receipts of the companies therefrom, and for the conveyance of goods, during the year between 1st July, 1842, and 30th June, 1843, present the following results.

These returns embrace 63 lines of railway, of which 46 are in England and Wales, 15 are in Scotland, and 2 are in Ireland; but 4 of those in Scotland are worked wholly by means of horse traction, and do not properly come into the railway system. Of the remaining 59 lines there are 53 which have made perfect returns as to the number of passengers conveyed, and their separation into classes; viz. 46 in England and Wales, 10 in Scotland, and 2 (all now in operation) in Ireland. The remaining companies, of which 5 are in England and 1 in Scotland, have not classified their passengers. The 53 companies have made returns which are complete, both with respect to the number and the classification of passengers conveyed, and the amount of gross revenue derived from each class.

The number of passengers, thus classified, who were conveyed by these 52 lines of railway, during the year ending 30th June, 1843, was 21,620,535; viz.

First Class Passengers	4,223,249
Second Class Passengers	10,968,061
Third Class Passengers	6,429,225
	<hr/>
	21,620,535

The per centage proportions were as follows:—

First Class	19·53 per cent.
Second Class	50·73 ,,
Third Class	29·74 ,,
	<hr/>
	100·00

Considered with reference to the divisions of the kingdom, the passengers conveyed on the 51 lines were:—

—	England and Wales. 40 Lines.	Scotland. 10 Lines.	Ireland. 2 Lines.
First Class Passengers.	3,882,171	245,757	95,321
Second Class Passengers	8,951,070	877,055	1,139,936
Third Class Passengers	4,060,321	1,529,717	839,187
	16,893,562	2,652,529	2,074,444

The per centage proportions of these numbers are:—

—	England and Wales.	Scotland.	Ireland.
First Class	22·98	9·27	4·60
Second Class	52·99	33·06	54·95
Third Class	24·03	57·67	40·45
	100·00	100·00	100·00

The money received from the above 21,620,535 passengers was 3,063,032*l.*, and was paid by each class of passengers and in each division of the kingdom as follows:—

—	England and Wales.	Scotland.	Ireland.
	<i>£.</i>	<i>£.</i>	<i>£.</i>
First Class	1,326,015	41,501	4,164
Second Class	1,186,892	60,300	32,993
Third Class	331,985	59,881	19,391
	2,844,802	161,682	56,548

The proportionate receipt from each class of passengers was:—

First Class	46·61	25·67	7·37
Second Class	41·72	37·29	58·34
Third Class	11·67	37·04	34·29
	100·00	100·00	100·00

The average charge to each passenger was as follows:—

	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>
First Class	6 10·00	3 4·57	0 10·48
Second Class	2 7·82	1 4·50	0 6·94
Third Class	1 7·62	0 9·39	0 5·54

Embracing the three divisions of the kingdom in the calculation, the average charge to each passenger by the various classes of carriages was:—

	<i>s.</i> <i>d.</i>
First Class	6 5·95
Second Class	2 4·01
Third Class	1 3·35

The great difference that exists between the average fares paid in England, Scotland, and Ireland is doubtless occasioned by the greater length of the English lines of railway beyond those of Scotland and Ireland, and the greater length of the Scottish lines beyond those of Ireland. This causes the average distances travelled by each passenger to follow something like the same proportion. Of the two Irish lines, that between Dublin and Kingstown is only $5\frac{2}{3}$ miles, and the Ulster Railway as yet is opened for only 25 miles, between Belfast and Portadown. The longest line hitherto finished in Scotland is that between Edinburgh and Glasgow, which is 46 miles long, while in England the Great Western Railway, with its extension from Bristol to Beambridge, on the way to Exeter, is $171\frac{1}{2}$ miles long, and by four different but continuous lines a traveller may proceed in one direction from London to Darlington, a distance of 263 miles.

In framing the returns which the various railway companies have been called upon to make, it was sought to obtain an account of the average distances travelled on the various lines by each passenger, and the aggregate number of miles passed over by the millions of passengers, who avail themselves of this method of travelling; but the design in calling for this information has been misunderstood in so many instances that it is not possible to deduce from the returns any satisfactory result in this particular. It may hereafter be possible, by explanation, to induce the companies so to keep their accounts as to make this return with accuracy, so that data may be obtained whereby to compare one year with another, and one part of the kingdom with another, in regard to this very significant indication of the national progress. While the Government duty on passengers was levied in respect of the distances travelled by each passenger at the rate of one-eighth of a penny per head per mile, this information was accurately afforded; but when this rate was commuted into a per centage (5 per cent.) upon the gross receipts arising from the fares of passengers, the companies were no longer compelled to keep the account by means of which the mileage was ascertained, and they have almost all of them neglected to comply with the request made to them to that end. The sum received by the Government on account of this tax, and the mileage which that sum represented in each year, from 1838 to 1841, were as follows:—

	£.	s.	d.	
1838—	39,570	16	0	; equal to 75,975,946 persons carried one mile each.
1839—	72,716	19	8	,, 143,616,608 ,, ,,
1840—	112,427	11	10	,, 215,860,976 ,, ,,
1841—	159,779	0	0	,, 306,775,680 ,, ,,

From which it would appear that in the short period between 1838 and 1841, the amount of railway travelling was quadrupled throughout the kingdom.

Having no complete returns of the actual number of passengers travelling by railways during those years, it is, of course, impossible to determine the average distance travelled by each passenger. In the course of the year 1842,* the system of charging the duty was altered, as already stated; and being thus deprived of one element of the calculation when we had tolerably well succeeded in acquiring another that had been wanting, we are in no better condition than we were for

* 1st August.

accurately testing the progress of railway travelling in this important particular. When the change was made from a specific to a per centage duty, it was believed that 5 per cent. upon the gross receipts would prove a fair equivalent for the fixed sum according to distance that was previously charged; but although this might be the case with respect to lines which maintain a high rate of fares, the calculation certainly does not hold good with railways charging low fares. The Scottish lines mostly belong to the latter class, and although there is no reason to believe that fewer persons travelled by railway, or that they accomplished a fewer number of miles distance in 1843 than they accomplished in 1842, there was a falling off in the amount of duty in the latter year of fully 40 per cent.: on the English lines the falling off was about 3 per cent., and as it is not probable that railway travelling was lessened in 1843, but rather the contrary, it results that the change in the duty has been profitable to the English lines also. One chief ground upon which the change was advocated by the companies was, that a fixed charge on the part of the Government tended to make high fares necessary, and that if the directors were relieved from this difficulty, they would be at greater liberty to adjust their rates of fare according to the capabilities and convenience of the public.

The returns from which the foregoing statements and calculations have been derived, embrace, as already stated, 59 lines upon which passengers are conveyed by locomotive power; but owing to the imperfect manner in which the particulars have been given by 6 of those companies which have neglected to classify the passengers, the numbers used have reference to only 53 distinct railways. If we include the returns made without classification by the 6 companies previously excluded, and the 4 Scottish lines worked by horses, we find that during the year ending 30th June, 1843, there were conveyed,—

In First Class carriages . . .	4,276,540	passengers, or 18·22 per cent.
In Second Class carriages . . .	11,198,512	„ 47·72 „
In Third Class carriages . . .	6,431,911	„ 27·41 „
By Mixed Trains, of which no classification has been made	1,559,933	„ 6·65 „
Total	<u>23,466,896</u>	<u>100·00</u>

If stated according to the divisions of the kingdom, the numbers were,—

—	England and Wales.	Scotland.	Ireland.
First Class	3,919,570	261,649	95,321
Second Class	9,163,758	894,818	1,139,936
Third Class	4,063,007	1,529,717	839,187
Mixed	1,147,002	412,931	•
	<u>18,293,337</u>	<u>3,099,115</u>	<u>2,074,444</u>

These numbers must not be taken as absolutely correct data for estimating the locomotive habits of the people in the various divisions of the kingdom. Many English-born persons must be included among the railway travellers of Scotland and Ireland, while many natives of those divisions would be found among the travellers in England. The principal part, however, who journey in the several divisions of the kingdom are doubtless natives of those divisions; and if we assume them to be

wholly so, or that the variations from this assumption are experienced in equal proportions among them, we shall see, that during the 12 months under examination, there were of railway travellers for each 1000 inhabitants :—

1,149 persons in England and Wales,
1,182 persons in Scotland,
253 persons in Ireland,

the small proportion of Ireland being manifestly attributable to the comparative insignificance of the means hitherto provided there for the purpose.

If we compute the proportions in the three divisions of the kingdom, according to the number of inhabitants, and the length of the railways provided for their use, we find that there were in 1843 :—

In England and Wales, 1856 $\frac{1}{4}$ miles of railway for a population of 15,911,725, or 1 mile of railway for 8572 persons.

In Scotland, 227 $\frac{1}{4}$ miles of railway for a population of 2,620,610, or 1 mile of railway for 11,532 persons.

In Ireland, 31 miles of railway for 8,175,238 persons, or 1 mile of railway for 263,717 inhabitants.

In the United Kingdom 2114 $\frac{1}{2}$ miles of railway for a population of 26,707,573, or 1 mile of railway for 12,630 persons.

And that for each mile of railway opened, there were,—

In England and Wales 9,855 passengers.
In Scotland 13,637 „
In Ireland 66,917 „
In the United Kingdom 11,098 „

Of the 63 railroads comprehended in the table whence the foregoing calculations have been derived, 60 have stated the amount received by them during the year, for the conveyance of carriages, horses, cattle, minerals, and general merchandise; the other 3 lines are for very short distances, and where goods are not conveyed.* The amount of receipts from this source was,—

In England and Wales £1,303,291, or per mile £702
In Scotland 114,839 „ 505
In Ireland 6,802 „ 219

1,424,932 „ 674

The total receipts of the 63 lines of railway for the conveyance of passengers and goods, taken together during the year was :—

—	Passengers.	Goods.	Total.
	£.	£.	£.
England and Wales . .	2,883,876	1,303,291	4,187,167
Scotland	169,833	114,839	284,672
Ireland	56,548	6,802	63,350
Total	3,110,257	1,424,932	4,535,189

The receipts for each mile of railway were therefore,—

In England and Wales £2,255
In Scotland 1,252
In Ireland 2,044
In the United Kingdom 2,145

* The table contains returns from 3 lines—2 in Scotland and 1 in Wales—which do not convey passengers: the amount paid for the conveyance of goods was therefore collected upon 63 railways.

	England.		Scotland.		Ireland.	
	Year ending June 30.		Year ending June 30.		Year ending June 30.	
	1842	1843	1842	1843	1841	1843
Number of Passengers } Conveyed }	15,239,310	14,801,817	1,246,030	1,387,281	2,046,903	2,074,444
	£.	£.	£.	£.	£.	£.
Receipts from Passengers	2,614,373	2,567,086	62,143	56,298	54,219	56,548
Receipts from Goods, &c.	1,008,677	1,143,475	31,393	38,463	2,015	6,802
<hr/>						
Total number of passengers in the whole 45 lines, year ending June 30, 1842	18,532,143		18,432,542		18,263,542	
Ditto ditto	18,263,542		18,432,542		18,263,542	
Total receipts from passengers	£ 2,730,735		£ 2,679,932		£ 2,679,932	
Ditto ditto	£ 2,679,932		£ 2,679,932		£ 2,679,932	
Total receipts from goods, &c. . . .	1,042,085		1,042,085		1,042,085	
Ditto ditto	1,042,085		1,042,085		1,042,085	
Total receipts from passengers and goods	3,772,820		3,772,820		3,772,820	
Ditto ditto	3,772,820		3,772,820		3,772,820	
	3,868,672		3,868,672		3,868,672	

Even with the explanation that has been offered, these figures are far from exhibiting any satisfactory progress. That the number of passengers using the considerable number of 45 railways, should, under any circumstances, have been absolutely smaller in the later, than it was in the earlier year, can only be fully accounted for by calling to mind the state of depression in which so many branches of the national industry had for some time been placed, and the effects of which would necessarily become greater with the protracted continuance of the cause. The change in this respect, which now appears to have set in, may be expected to exhibit a very different result, and it will be a cause for great surprise, as well as of disappointment, if the returns for the year that will end at midsummer next, shall not exhibit a very marked improvement upon those of preceding years.

It may be interesting to compare in some particulars the working of our railways with those of Belgium, the only country in Europe, besides our own, in which such works have hitherto been carried on as a system, and where the results have been published.

At the end of 1842, there were in operation in that kingdom, 282 miles of railways, the average cost of constructing which was 17,120*l.* per mile, while the average cost in this kingdom has been 34,360*l.* or just double the cost in Belgium. This difference results from a variety of causes. In the first place, the works being undertaken by the government, there were no expensive parliamentary contests; no opposing interests to be bought off; no unreasonable compensations to be paid for land; and from the nature of the country, there were comparatively few engineering difficulties to be overcome. Besides these circumstances there has been much present saving effected in the manner of executing the works, which have been performed in a less perfect manner than would satisfy the magnificent ideas of our engineers.

The number of passengers conveyed along the various lines in Belgium, in 1842, was 2,724,104, or 662 for each 1000 of the population, the proportion in the United Kingdom having been in the year ending 30th June, 1843, 879 for each 1000 inhabitants, or 33 per cent. greater than in Belgium.

The proportions using various class carriages, were:—

	In Belgium.	In the United Kingdom.
1st Class	9 per cent.	19 per cent.
2nd Class	25 „	51 „
3rd Class	66 „	30 „
	<hr/> 100	<hr/> 100

The receipts from passengers during the year were, in Belgium, 187,372*l.*, or 1*s.* 4½*d.* per passenger against 2*s.* 2¾*d.* in the United Kingdom. The proportions in which the receipts were contributed by the three classes of passengers were:—

	In Belgium.	In the United Kingdom.
1st Class	23	45
2nd Class	25	42
3rd Class	52	13
	<hr/> 100	<hr/> 100

The average distance travelled by each passenger in Belgium, is stated to have been $7\frac{3}{4}$ leagues, or about 19 miles. Mr. Laing computes the average distance in this country at $13\frac{1}{2}$ miles. This shows us the comparative cheapness of fares in Belgium, where passengers are conveyed on the average 19 miles for 1s. $4\frac{1}{2}d.$, while in England the average fare is 2s. $2\frac{3}{4}d.$ for $13\frac{1}{2}$ miles. This difference results in great part from the much larger proportion of travellers who in that country use the cheapest class of carriage.

In Belgium there was in use in 1842, 1 mile of railway for every 14,601 inhabitants, the proportion in the United Kingdom having been 1 mile for 12,630 inhabitants.

The number of passengers in proportion to the length of railways was, for each mile 9695 passengers in Belgium, and 11,098 in this kingdom.

The total receipts for each mile were,—

	In Belgium.	In the United Kingdom.
	£.	£.
From Passengers	664	1,471
From Goods	394	674
	<hr/> 1,058	<hr/> 2,145

The gross receipts, in proportion to cost, are therefore found to be, in Belgium $6\frac{1}{2}$ per cent., and in this kingdom $6\frac{1}{4}$ per cent.

Observations on Certain Passages in the Report of the Irish Census Commissioners. By HENRY HALLAM, Esq., F.R.S., one of the Trustees of the Society.

[Read before the Statistical Society of London, 15th April, 1844.]

MY DEAR SIR,

Wilton Crescent, March 14, 1844.

THE late Report of the Census Commissioners for Ireland contains so rich a harvest of facts interesting to the lover of statistical inquiries, and gives such proofs of labour and diligence in those by whom it has been compiled, that it becomes more important to point out any casual inaccuracy that may have crept into it, than in a less authorized publication, or one less likely to be of enduring reputation. I shall, therefore, make no apology for troubling the Society with a few observations on one part of the Report.

In page 42 a table is given, “exhibiting,” the Commissioners say, “the tendency to marriage at different ages, for the entire kingdom, in the towns and in the country.” It is headed, “Proportion unmarried of 100 of the population of the respective ages;” and these ages are arranged in five columns. The proportion above mentioned does not refer to the entire population, though it is rather equivocally worded, but to that of each age respectively. And it is inferred by the Commissioners, that “as to males, 7 per cent. in the country and 13 per cent. in the towns are married at 25 years of age; and that, as might be expected, the greatest proportion of men marry between the ages of 26 and 35.” It is observed afterwards, that “females marry earlier than males; accordingly it will be seen by the table that 19 per cent. in the country and 21 per cent. in the towns are married at the age of 25.”

That less than one-tenth of the male adult population (that is, above